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(71) Applicant (for all designated States except US): THE
SAMUEL ROBERTS NOBLE FOUNDATION, INC.
[US/US]; 2510 Sam Noble Parkway, Ardmore, OK 73402
(US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DIXON, Richard,
A. [GB/US]; 206 Woods Lane, Ardmore, OK 73401 (US).
HE, Xian, Z. [US/US]; 316 Beaumont Drive, Ardmore,
OK 73402 (US).

(74) Agents: HANSEN, Eugenia, S. et al.; Sidley & Austin,
Suite 3400, 717 North Harwood, Dallas, TX 75201 (US).

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(54) Title: ISOFLAVONOID METHYLATION ENZYME

(57) Abstract: Methods of genetically manipulating biologically active 4'-O-methylated isoflavonoids have been found based upon the regiospecificity of isoflavone 7-OMT in vivo. Upon transformation and expression of an isoflavonoid O-methyltransferase gene, the regiospecificity of IOMT in the transgenic plants can be used to increase the accumulation of 4'-O-methylated isoflavonoid phytoalexins, providing for increased disease resistance to the plant. Similar methods can be used to increase accumulation of 4'-O-methylated isoflavonoid nutraceuticals in plants. For down-regulation of IOMT in plants that naturally make 4'-O-isoflavonoid phytoalexins and 4'-O-methylated isoflavonoid nutraceuticals, IOMT gene sequences can be transformed in the antisense orientation.

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